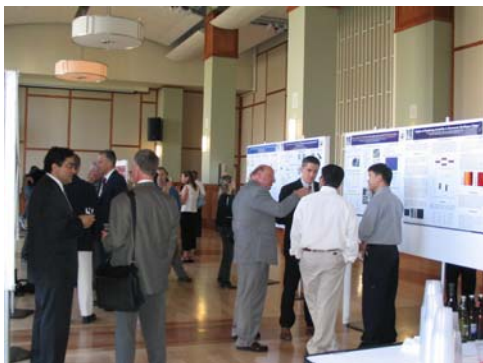




## Industry Day Showcase 1/25/07



The NSF Nanoscale Science and Engineering Center for High-rate Nanomanufacturing (CHN) is hosting an Industry Day Showcase on **January 25, 2007**. The event will showcase the research of the Center, including Northeastern University, the University of New Hampshire, and the University of Massachusetts Lowell.

Hampshire, and the University of Massachusetts Lowell.

At the event, Director Ahmed Busnaina will give an overview presentation on the work of the Center, and graduate students will present posters on their research. The reception will provide opportunities for networking and interaction with the faculty, post doctoral research associates, and graduate students working on CHN projects.

Invitees are encouraged to bring colleagues who may also be interested in the work of the CHN, which is described in the following pages.

**CHN Industry Day Showcase**  
**January 25, 2007 from 3:00 to 6:00 pm**  
**Raytheon Amphitheater, Egan Center**  
**120 Forsyth Street**  
**Northeastern University, Boston**



NSF Nanoscale Science and Engineering Center for High-rate Nanomanufacturing  
RSVP to Carolyn Oakes at 617-373-6012 – [c.oakes@neu.edu](mailto:c.oakes@neu.edu)  
[www.nano.neu.edu](http://www.nano.neu.edu)



## Industry Day Showcase 1/25/07

### Partial List of Posters to be Presented

- Directed Assembly of Nanoparticles Using Electric Fields
- Directed Assembly of Single Walled Carbon Nanotubes for Large Scale Device Fabrication
- Three Dimensional Nanotube-based Interconnect Three Dimensional Nanoelectronic Devices
- Alumina Nanotemplates for High-rate Assembly of Nanotubes
- Controlled Fabrication of Carbon Nanotubes
- Template-Directed Assembly of Block Copolymers
- Force-Distance Measurements and Simulations for Chemical Alignment and Registration
- Fabrication of Organic Circuits Using Electric-field-assisted Assembly of Conducting Polymers and Pattern Transfer
- Surface Chemistry Assisted Assembly and Transfer of Nanoelements
- Fabrication and Evaluation of Carbon Nanotube-Parylene Functional Thin-Films
- Modeling of Chemical Mechanical Planarization
- An Innovative Approach to Fabrication Templates to Control Polymer Morphology
- Composite Au-SiO<sub>2</sub> Thin Films for Controlling Organic Thiol Attachment Areas
- Synthesis of Uniform size and property Single Wall Nanotubes
- Pattern Formation of Functionalized Fullerenes on Gold Surfaces: Atomistic and Model Calculations
- Characterization of Nanowires Testing Using MEMs Devices
- The effect of Functionalization on Carbon Nanotube Interaction with surfaces
- Effect of Medium on Particle Adhesion and Removal
- Numerical and Experimental Analysis of Nanoelement Assembly, Adhesion, and Removal
- Economic and Environmental Tradeoffs in SWNT Production
- Nanoparticle Health and Safety



Center for High-rate  
Nanomanufacturing

## Center Mission & Vision

Fueled by the dramatic increase in worldwide investments over the past few years, nanoscience research is rapidly creating scientific breakthroughs. To ensure that discoveries lead to commercially viable products in a time span faster than the traditional linear 20-30 year window, it is essential to develop nanomanufacturing technology in parallel with the ongoing nanoscience research.

The NSF Nanoscale Science and Engineering Center for High-rate Nanomanufacturing (CHN) develops processes and tools to bridge the gap between nanoscale science research and products, and enable society to reap the benefits of nanotechnology. In addition to developing novel nanomanufacturing technologies, CHN is also delivering the much-needed education in nanomanufacturing, including its environmental, economic, and societal implications, to the current and emerging workforce through partnerships among industry, universities, and K-12 teachers and students.

Membership in the CHN enables companies with a vested interest in nanomanufacturing to support the cutting edge research being conducted by the tri-University CHN through a tax-deductible corporate donation. As industrial members of the Center, companies gain access to the nanomanufacturing facilities at all three universities, sponsor graduate student work, and have options for exclusive or non-exclusive licensing of the intellectual property.



Center for High-rate  
Nanomanufacturing

## About the CHN



In the fall of 2004, the National Science Foundation awarded Northeastern University, the University of Massachusetts Lowell, the University of New Hampshire, and its partners Michigan State University and the Museum of Science, a Nanoscale Science and Engineering Center for High-Rate Nanomanufacturing with funding of \$12.4 million over five years (renewable for another five years).

The Center for High-rate Nanomanufacturing is focused on developing tools and processes that will enable high-rate/high-volume bottom-up, precise, parallel assembly of nanoelements (such as carbon nanotubes, nanoparticles, etc.) and polymer nanostructures. The Center nanotemplates are utilized to conduct fast massive directed assembly of nanoscale elements by controlling the forces required to assemble, detach, and transfer nanoelements at high rates and over large areas. The developed nanotemplates and tools will accelerate the creation of highly anticipated commercial products and will enable the creation of an entirely new generation of applications.

CHN is supported by the National Science Foundation Award  
#NSF-0425826.

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